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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JUEDES, AMY E	

ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,030	MUIMO ET AL.	
	Examiner	Art Unit	
	Amy E. Juedes, Ph.D.	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 51* is/are pending in the application.

4a) Of the above claim(s) *4,5,8-13 and 51* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The examiner of this application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Amy E. Juedes, Group Art Unit 1644, Technology Center 1600.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed 4/12/06 in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/16/06 has been entered.

Claims 1 and 7 have been amended.
Claims 1-13 and 51 are pending.

Claims 4-5 and 8-13 and 51 stand withdrawn from further consideration pursuant to 37 CFR 1.14209 as being drawn to a nonelected inventions, there being no allowable generic or linking claim.

Claims 1-3 and 6-7 are under examination.

3. The rejection of claims 1, 3, and 6-7 under 35 U.S.C. 102(b) is withdrawn in view of Applicant's submission of a declaration by Linda Rimmer under 37 C.F.R. 1.132. Linda Rimmer states that in her opinion, under no circumstances would an abstract book have been mailed as early as March 2, 1998. Since the Examiner is not in possession of any evidence to refute the statement made by Linda Rimmer, it must be assumed that the Riemen reference was not publicly available before March 2, 1998, and is thus not applicable as prior art under 102(b). In view of the previous submission of a declaration that the Riemen reference is Applicant's own work, the reference is also not available under 102(a).

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 and 6-7 rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As set forth previously, the claims do not define what parameters need to be met to determine if the patient is responding to treatment or has cystic fibrosis. As such the claims remain indefinite.

Applicant's arguments filed 2/16/06 have been fully considered, but they are not persuasive.

Applicant argues that the amendment to the claims obviates the rejection. However, the amendment to the claims still has not clarified what parameters need to be met to determine if the patient has cystic fibrosis or is responding to treatment. The claim recites that an altered NDPK function or state in a cell compared to a control cell indicates that a patient has cystic fibrosis, or is responding to treatment. However, the claim does not specify how NDPK function or state is to be altered. For example, does an increase in NDPK function compared to a control indicate a diagnosis of cystic fibrosis? Additionally, it is not clear exactly what is meant by "state" of NDPK. Are the claims intended to encompass an altered expression of NDPK? Furthermore, the instant claims do not define what type of control cell the cells are to be compared to. For example, are the claims intended to encompass a "control" that is a patient with cystic fibrosis?

5. The following are new grounds of rejection.

6. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claim 1 is unclear and indefinite in the recitation of "nucleotide" diphosphate kinase (NDPK). It is unclear what protein is being referred to, since NDPK usually stands for nucleoside diphosphate kinase.

B) Claim 7 is indefinite in the recitation of a classifying a "disease state". It is not clear what the term encompasses. For example, are the claims intended to encompass classifying a predisposition to disease or even death related to a disease? Furthermore, the instant claim is drawn to a method of "classifying" a disease state, but the resolution step indicates

that an alteration in a measured parameter "indicates" a disease state. It is not clear how an indication of a disease state would result in the classification of said disease state.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 6-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the specification provides insufficient evidence that the method could function as broadly claimed.

The specification disclosure is insufficient to enable one skilled in the art to practice the invention as claimed without an undue amount of experimentation. Undue experimentation must be considered in light of factors including: the breadth of the claims, the nature of the invention, the state of the prior art, the level of one of ordinary skill in the art, the level of predictability of the art, the amount of direction provided by the inventor, the existence of working examples, and the quantity of experimentation needed to make or use the invention, see *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988).

In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) states, "The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art." "The "amount of guidance or direction" refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. In contrast, if little is known in the prior art about the nature of the invention and the art is

unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling" (MPEP 2164.03). The MPEP further states that physiological activity can be considered inherently unpredictable. With these teachings in mind, an enabling disclosure, commensurate in scope with the breadth of the claimed invention, is required.

With regards to the instant claims, their breadth comprises a primary issue as regards the unpredictability of the claimed method. The claims are drawn to diagnosing cystic fibrosis or determining a response to treatment of cystic fibrosis by comparing the function or state of NDPK in epithelial cells of a subject to a control epithelial cell. The claims further recite that an altered NDPK function or state in the cell sample compared to a control indicates a diagnosis of cystic fibrosis. Thus, the claims encompass making a diagnosis of cystic fibrosis based on any direction of alteration (i.e. up or down, higher or lower etc.), in any function or state (i.e. expression, activity, phosphorylation status etc) of NDPK. However, it is known that cystic fibrosis is associated with a decreased function of NDPK (see Riemen et al., CFTR mice compared to control). Therefore, it seems unlikely that an increase in NDPK function compared to a healthy control would indicate a diagnosis of cystic fibrosis. Likewise, it seems unlikely that a decrease in NDPK function would indicate a response to cystic fibrosis treatment, as encompassed by the claims. Rather, since NDPK function is decreased in cystic fibrosis, it would be expected that an increase should be observed in order to determine that a patient is responding to treatment. Furthermore, the claims encompass using any epithelial cell (i.e. skin, liver, heart etc.) in the method of diagnosis. It seems unlikely that a skin sample would be useful for diagnosing cystic fibrosis, since it is a disease that affects the respiratory system. Furthermore, the examples provided in the instant specification are all drawn to using airway cell samples. Thus, it is apparent that the method cannot function as broadly claimed.

Furthermore, with regard to claim 7, it is noted that the claim is broadly drawn to classifying a disease state associated with epithelial cell dysfunction. This encompasses the classification of a wide range of disease states. For example, psoriasis vulgaris is a common skin disease characterized by excessive growth of skin epithelial cells (i.e. an epithelial cell dysfunction, see Krueger et al, abstract and pg. 31).

Likewise age related macular degeneration is associated with the death of retinal pigment epithelial cells (i.e. an epithelial cell dysfunction), see Lu et al., pg. 119. Thus, the instant claims encompass classifying (i.e. diagnosing) a wide range of different diseases, including psoriasis vulgaris and age related macular degeneration, which are both associated with epithelial cell "dysfunction". There is no known correlation in the art between diseases such as psoriasis and age related macular degeneration and NDPK function, and no correlation is established in the instant specification. Thus, given the state of the art, the instant specification must provide a sufficient and enabling disclosure, commensurate in scope with the claims. However, all of the examples provided in the instant specification relate to the diagnosis or classification of cystic fibrosis. Thus, given the state of the art and the lack of working examples, the method of the instant claims must be considered highly unpredictable. Given said unpredictability, the method of the instant claims must be considered to require undue experimentation.

8. No claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy E. Juedes, Ph.D. whose telephone number is 571-272-4471. The examiner can normally be reached on 8am - 5pm, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amy E. Juedes, Ph.D.
Patent Examiner
Technology Center 1600
April 28, 2006

5/2/06
G.R. EWOLDT, PH.D.
PRIMARY EXAMINER